Added Pages to Show Changes Made to the Specification

BACKGROUND OF THE INVENTION

(Page 3, Paragraph beginning with lines 10 and ending with line 18)

Other options for PN-code sequences include free running PN codes in which the PN code continually runs (i.e., a long PN code) whether a burst hail is present or not. Searching for a free running PN-code is difficult because the range [of] or uncertainty of communication range uncertainty increases the search window thus increasing the noise level in the detection receiver. Furthermore, free running codes require a prohibitive increase in hardware necessary for searching each possible phase of the preamble sequence.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

(Page 12, Paragraph beginning with lines 16 and ending with line 6 on Page 13)

Referring also to Figures 4A, 4B, and 4C, a timing and synchronization diagram between receiver and transmitter of subject invention is disclosed. Figure 4A transmit timeline 41 depicts PN signals N-1, N, and N+1 as a continuous PN

signal transmission encoded with a suitable periodically switched PN code transmit sequence. Figure 4B receive timeline 42A, illustrates continuous PN code-receive sequences N-1, N, and N+1 beginning at an earliest arrival time td. Time Td corresponds to the earliest arrival time of transmit PN signal N-1 at the receiver when transmitter/receiver synchronization error is present. Figure 4C time td1 corresponds to the latest arrival time of transmit PN signal N-1 at the receiver due to transmitter/receiver synchronization error and unknown range delay and is illustrated on timeline 42B. A transmitted PN signal at time TT1, Figure 4A, arrives at the receiver (Figure 2, item 14) at some time between td and td1. During receive time RT1, the receiver is searching only for transmitted PN signal N-1. Referring to Figure 5, during time RT1 only one correlator 51 is required for demodulation of PN signal N-1. Correlator 52 is not actively searching or demodulating a PN signal.

(Page 13, Paragraph beginning with lines 7 and ending with line 24)

Due to timing uncertainty and unknown range delay (td-td1) receive sequence N-1 is still correlating PN signal N-1 after the termination of transmitted PN signal N-1, item TT_1, and during the transmission of PN signal N, TT_2. During this time RT2, PN signals N and N-1 are actively searched and correlated in correlators 51 and 52, respectively. This continues for the duration of receive sequence N-1. Receive sequence N next begins to correlate transmitted PN signal N during time RT3. During this period only PN signal N is actively being searched therefore only correlator 51 is

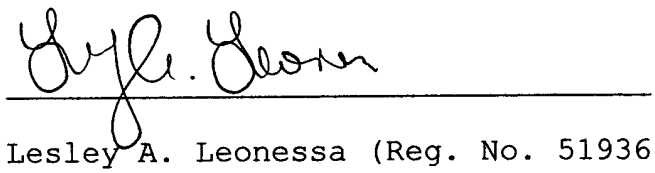
required for demodulation. Due to timing uncertainty and unknown range delay (td-td1) receive sequence N is still correlating PN signal N even after PN signal N has finished transmitting and PN signal N+1 has begun transmitting. During this time period RT4, both PN signals N+1 and N are actively correlated and searched in correlators 51 and 52. This process of detection continues for the duration of the PN signal sequence transmission.

(Page 13, Paragraph beginning with lines 25 and ending with line 19 on Page 14)

In the case of a burst transmission, the method assumes that a burst could occur at any time, the receiver is actively searching for the burst, and that the receiver would demodulate the burst signal upon arrival. All transmitters and receivers utilizing the method could be synchronized to the time lines of Figure 4. When a burst transmission starts, a transmitter may use a PN code associated with a time period in which the burst is to occur. For example, any time during time period TT1, a transmit burst signal would contain the PN code sequence assigned to time TT1. During time RT1, the receiver is actively searching for the PN code assigned to time TT1. If during time RT1, a receiver detects a correlation between the received signal and the assigned PN sequence, a burst has been detected and the receiver demodulates the remaining signal. Due to range delays between transmitter and receiver, during time RT2 the receiver actively searches for both PN codes assigned to time TT1 and PN codes assigned to time TT2. If a correlation is detected between the received signal and either PN code sequence the

receiver uses the correlated PN code sequence to demodulate the remaining portion of the signal. The overlap period, RT2, accounts for the timing uncertainty and range uncertainty that will occur between all users. This process of detecting a potential burst transmission continues throughout the duration of the burst signal transmissions.

Respectfully submitted,



9/30/03

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